PUBLIC TRANSPORT OPTIMIZATION

Phase 4

Development Part 2

In this technology project you will continue building your project by developing the platform as per Project requirement. Use web development technologies wherever needed. After performing the relevant activities create a document.

Explanation

title.html

This HTML document appears to be the structure of a web page for "Public Transport Optimization" with real-time transit information. Here's a brief description of its key components:

- The document is written in HTML and specifies the language as English.
- It includes a title, "Real-Time Transit Information," in the browse tab.
- The page imports an external CSS file called "styless.css" for styling.

Within the `<body>` section, it contains:

- A header with the title "Real-Time Transit Information."
- Sections for "Location," "Ridership," and "Arrival Time" data.

Each section has a heading and displays real-time transit information, including location coordinates, ridership data (total passengers, capacity, occupancy), and arrival time data.

There's a search form that allows users to input a location for transit data search.

A footer displays the copyright information.

In the `<script>` section, there are JavaScript functions:

- searchTransitData() to handle user input and perform a search (currently just displaying a message).
- updateRealTimeData() to fetch real-time transit data via AJAX (not implemented in this code).
- A call to updateRealTimeData() that runs at regular intervals (every 10 seconds) to update real-time data.
- Another searchTransitData() function with basic input validation and a toggleRidershipData() function (not used in the code provided).

Overall, this HTML document sets up a web page to display real-time transit information and provides the structure for potential data updates and user interaction.

Bus.html

This HTML and CSS code creates a web page that displays "Vehicle Details." Here's a brief description of the key components and styles:

HTML:

1. The HTML document specifies the language as English and includes a title, "Vehicle Details."
2. It imports an external CSS file called "style.css" for styling.
3. The page structure consists of
    - A header with the title "Vehicle Details."
    - A section with the ID "vehicle-info," displaying information about a bus, including vehicle type, manufacturer, capacity, and year of manufacture.
    - Another section with the ID "route-info," providing details about the current route, such as route number, departure time, departure location, arrival time, and final destination.
    - A footer displaying the copyright information.

CSS:

1. The CSS code sets the body background color to light grey (#f3f3f3) and text color to dark grey (#333). It also removes margin and padding for the entire body.

2. The header section has a blue background (#007BFF) with white text, centered alignment, and some padding.
3. Headings (‘h1’ and ‘h2’) within sections are styled with blue color, increased font size (24px), and top and bottom margins.
4. Paragraphs (`p`) within sections have default styling with top and bottom margins.
5. Sections have a white background, padding, margin, and a slight box shadow. When hovering over a section, the box shadow becomes more pronounced, creating a subtle hover effect.
6. The footer has a dark gray background (#333) with white text and is centered. It also has a hover effect that changes the background color to blue (#007BFF) and changes the cursor to a pointer on hover.

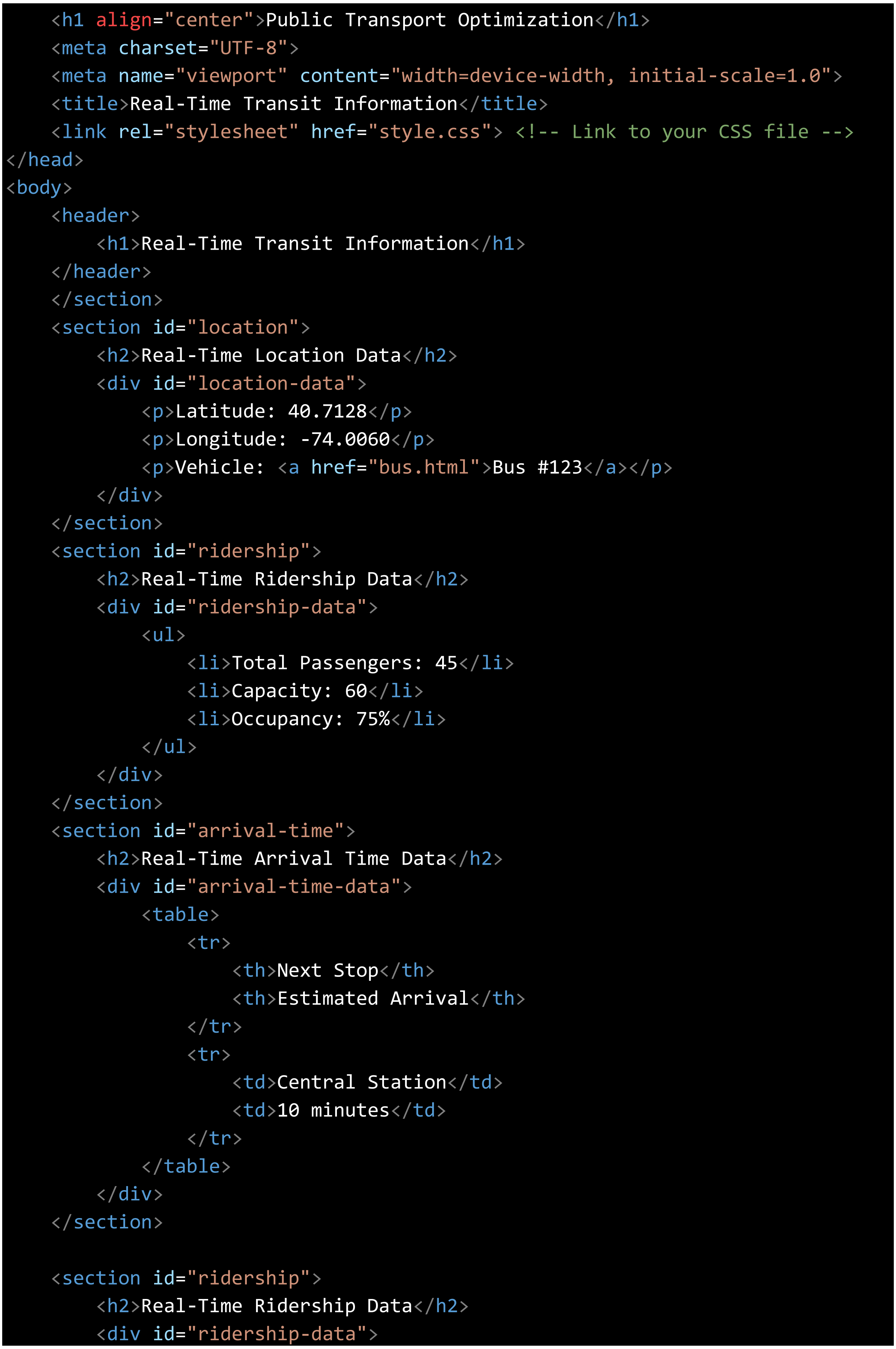
JAVASCRIPT:

It enables developers to create interactive and dynamic content on websites, making it an essential technology for building modern web applications.

1. **Real-Time Data Handling:** JavaScript is often used to collect and process real-time data from various sources, such as GPS trackers on vehicles, passenger information, and traffic conditions. This data can be used to track the current location of vehicles, monitor delays, and provide up-to-date information to passengers.
2. **Route Planning and Optimization:** JavaScript can be used to implement algorithms that calculate the most efficient routes for public transport vehicles. These algorithms take into account factors like traffic conditions, stops, passenger demand, and schedules to optimize routes for time and cost efficiency.

PROGRAM:

```
<!DOCTYPE html>
<html lang="en">
<head>
```



```
    <h1 align="center">Public Transport Optimization</h1>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Real-Time Transit Information</title>
    <link rel="stylesheet" href="style.css"> <!-- Link to your CSS file -->
</head>
<body>
    <header>
        <h1>Real-Time Transit Information</h1>
    </header>
    </section>
    <section id="location">
        <h2>Real-Time Location Data</h2>
        <div id="location-data">
            <p>Latitude: 40.7128</p>
            <p>Longitude: -74.0060</p>
            <p>Vehicle: <a href="bus.html">Bus #123</a></p>
        </div>
    </section>
    <section id="ridership">
        <h2>Real-Time Ridership Data</h2>
        <div id="ridership-data">
            <ul>
                <li>Total Passengers: 45</li>
                <li>Capacity: 60</li>
                <li>Occupancy: 75%</li>
            </ul>
        </div>
    </section>
    <section id="arrival-time">
        <h2>Real-Time Arrival Time Data</h2>
        <div id="arrival-time-data">
            <table>
                <tr>
                    <th>Next Stop</th>
                    <th>Estimated Arrival</th>
                </tr>
                <tr>
                    <td>Central Station</td>
                    <td>10 minutes</td>
                </tr>
            </table>
        </div>
    </section>

    <section id="ridership">
        <h2>Real-Time Ridership Data</h2>
        <div id="ridership-data">
```

```
            <p>Total Passengers: 45</p>
            <p>Capacity: 60</p>
            <p>Occupancy: 75%</p>
        </div>
    </section>
    <section id="arrival-time">
        <h2>Real-Time Arrival Time Data</h2>
        <div id="arrival-time-data">
            <p>Next Stop: Central Station</p>
            <p>Estimated Arrival: 10 minutes</p>
        </div>
    </section>
    <form>
        <label for="user-input">Search for Transit Data:</label>
        <input type="text" id="user-input" name="user-input" 
placeholder="Enter a location">
        <button type="submit">Search</button>
    </form>

    <footer>
        <p>&copy; 2023 Real-Time Transit Information</p>
    </footer>
<script>
function searchTransitData() {
    // Get user input
    var userInput = document.getElementById("user-input").value;

    // Perform a search or fetch real transit data
    // For simplicity, we'll just update a paragraph with the result
    var resultParagraph = document.getElementById("search-result");
    resultParagraph.textContent = "Search result for: " + userInput;
}
function updateRealTimeData() {
    // Use AJAX to fetch real-time transit data from a server
    // Update the content of location, ridership, and arrival-time sections
}

// Call the updateRealTimeData function at regular intervals
setInterval(updateRealTimeData, 10000); // Update every 10 seconds
function searchTransitData() {
    var userInput = document.getElementById("user-input").value;

    if (userInput.trim() === "") {
        alert("Please enter a valid location.");
    } else {
        // Proceed with the search
    }
}
```

```
function toggleRidershipData() {
    var ridershipData = document.getElementById("ridership-data");
    ridershipData.style.display = (ridershipData.style.display === "none") ?
"block" : "none";
}
</script>
</body>
</html>
```

HTML: (bus.html)

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Vehicle Details</title>
    <link rel="stylesheet" href="styl.css"> <!-- Link to your CSS file -->
</head>
<body>
    <header>
        <h1>Vehicle Details</h1>
    </header>
    <section id="vehicle-info">
        <h2>Bus #123</h2>
        <p><strong>Vehicle Type:</strong> Bus</p>
        <p><strong>Manufacturer:</strong> Acme Transit Inc.</p>
        <p><strong>Capacity:</strong> 60 passengers</p>
        <p><strong>Year of Manufacture:</strong> 2022</p>
    </section>
    <section id="route-info">
        <h2>Current Route</h2>
        <p><strong>Route Number:</strong> 101</p>
        <p><strong>Departure Time:</strong> 8:00 AM</p>
        <p><strong>Departure Location:</strong> Central Station</p>
        <p><strong>Arrival Time:</strong> 9:30 AM</p>
        <p><strong>Final Destination:</strong> Downtown Terminal</p>
    </section>
    <footer>
        <p>&copy; 2023 Vehicle Details</p>
    </footer>
</body>
</html>
```

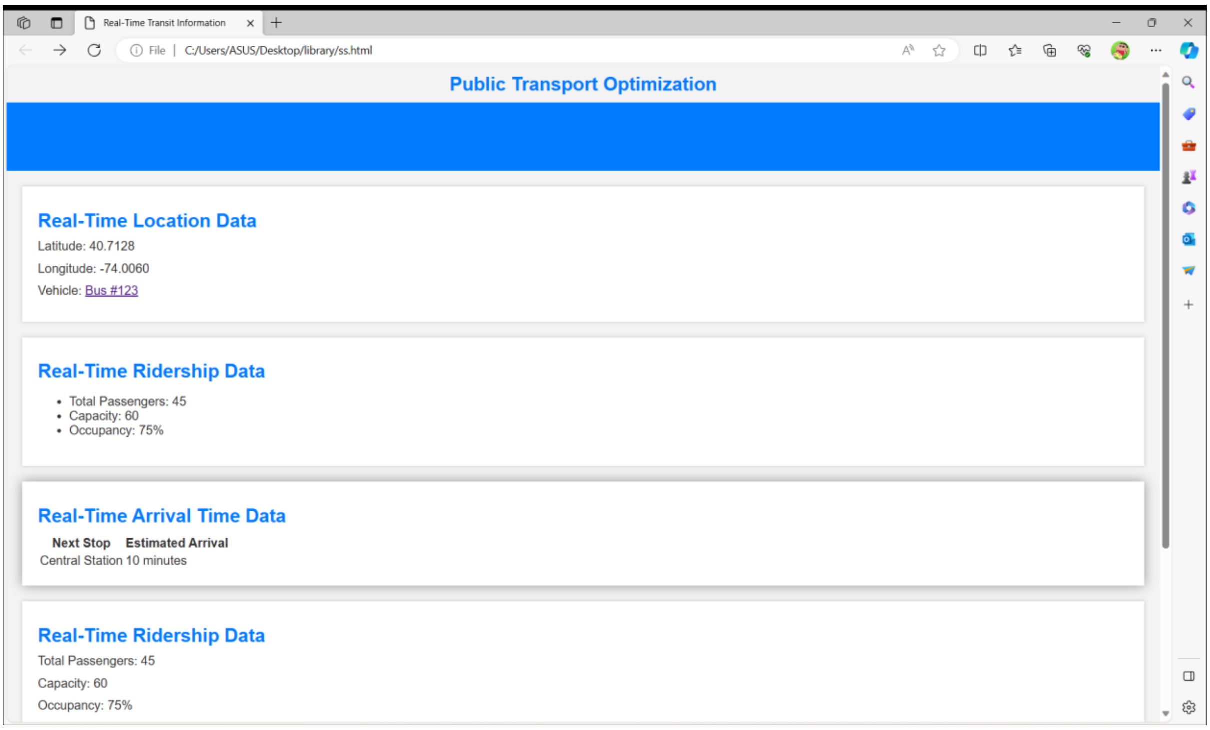
CSS: (style.css)

```
/* Apply a background color and text styles to the body */
```

```css
body {
    font-family: Arial, sans-serif;
    background-color: #f3f3f3;
    color: #333;
    margin: 0;
    padding: 0;
}

/* Style the header section */
header {
    background-color: #007BFF;
    color: #fff;
    text-align: center;
    padding: 20px;
}

/* Style headings within the sections */
h1, h2 {
    color: #007BFF;
    font-size: 24px;
    margin: 10px 0;
}

/* Style paragraphs within the sections */
p {
    margin: 10px 0;
}

/* Style the sections with a white background and shadow */
section {
    background-color: #fff;
    padding: 20px;
    margin: 20px;
    box-shadow: 0 0 5px rgba(0, 0, 0, 0.2);
    transition: box-shadow 0.3s ease; /* Smooth transition on box-shadow */
}

/* Add hover effect on sections */
section:hover {
    box-shadow: 0 0 15px rgba(0, 0, 0, 0.4);
}

/* Style the footer section */
footer {
    background-color: #333;
    color: #fff;
    text-align: center;
    padding: 10px;
    transition: background-color 0.3s ease; /* Smooth transition on background color */
    cursor: pointer; /* Change cursor on hover */
}

/* Add hover effect on footer background color */
footer:hover {
    background-color: #007BFF;
}
```

Overall, this code creates a simple and visually appealing web page for displaying vehicle details, with responsive styling and hover effects for user interaction.

Result:


Real-Time Transit Information
File | C:/Users/ASUS/Desktop/library/ss.html

Public Transport Optimization

Real-Time Location Data

Latitude: 40.7128

Longitude: -74.0060

Vehicle: Bus #123

Real-Time Ridership Data

- Total Passengers: 45
- Capacity: 60
- Occupancy: 75%

Real-Time Arrival Time Data

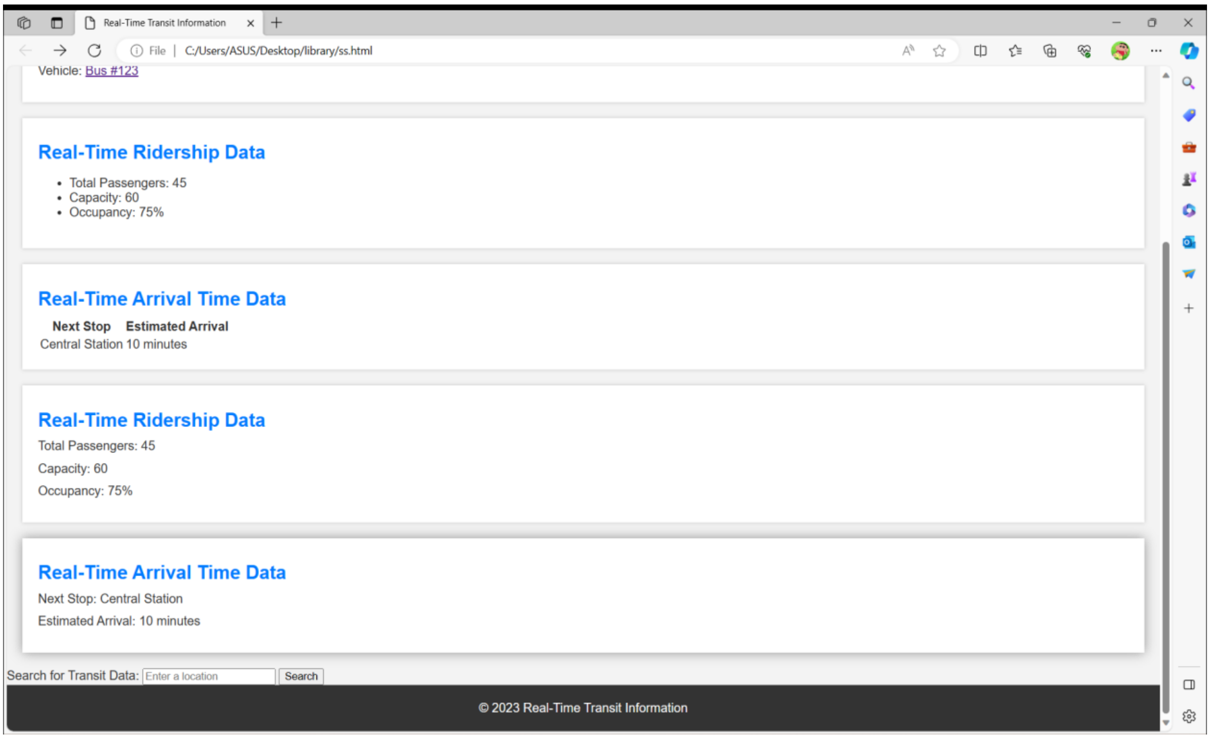
Next Stop	Estimated Arrival
Central Station	10 minutes

Real-Time Ridership Data

Total Passengers: 45

Capacity: 60

Occupancy: 75%


Real-Time Transit Information
File | C:/Users/ASUS/Desktop/library/ss.html

Vehicle: Bus #123

Real-Time Ridership Data

- Total Passengers: 45
- Capacity: 60
- Occupancy: 75%

Real-Time Arrival Time Data

Next Stop	Estimated Arrival
Central Station	10 minutes

Real-Time Ridership Data

Total Passengers: 45

Capacity: 60

Occupancy: 75%

Real-Time Arrival Time Data

Next Stop: Central Station

Estimated Arrival: 10 minutes

Search for Transit Data: Enter a location Search

© 2023 Real-Time Transit Information

"SOME BEAUTIFUL PATHS CAN'T BE DISCOVERED WITHOUT GETTING LOST"